Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

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NOVEMBER
1936

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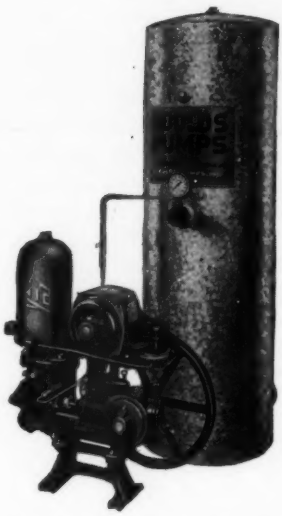

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6508

November, 1936

Electricity on the Farm

Vol. 9, No. 11

EDITORIAL

SPEAKING OF INFLUENCE—

Few people realize what a tremendous influence electricity exerts upon modern living conditions.

It has a direct bearing on the production of food and water and is gaining in importance in the conditioning of the air we breathe.

It provides heat and light, and is equally effective in producing low temperatures, as in refrigeration.

It produces the most convenient power available today.

It provides both recreation and education through the agency of radio.

Its many special uses, such as in signalling, cooking, sterilizing, insect destruction, etc., are too many to even mention here. There are over two hundred proven uses on the farm alone.

Despite the fact that the cost of doing work electrically is today very low, there is promise of even lower rates as the usage of current increases materially. Furthermore, electricity is one of the few commodities that did not increase in cost during the depression; in fact, there were reductions in rates in certain localities where conditions were such as to make these reductions possible.

Successful farming in the future will owe a tremendous debt to electricity!

FRED SHEPPERD.

Issued Monthly by
CASE-SHEPPERD-MANN PUBLISHING CORP.
Editorial-Executive Offices: 24 West 40th Street, New York
KARL M. MANN, *President* — I. H. CASE, *Vice-Pres. and Gen'l Mgr.*
FRED SHEPPERD, *Editorial Director* — JESSE H. NEAL, *Vice-President*
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CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, Western Manager; L. M. ROCHE, Western Representative
SAN FRANCISCO: 444 Market St., Room 305—C. H. WOOLLEY
Subscription price, 75 cents per year; single copies, 10 cents; Special Bulk Rates on Application
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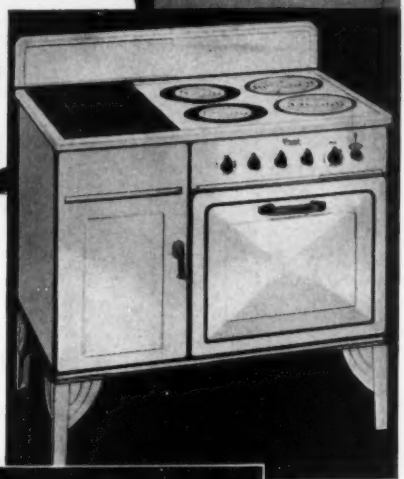
MONARCH

Again Steps Forward

WITH A COMBINATION ROOM HEATER AND ELECTRIC RANGE MODEL



40 years' experience building ranges for the home!

With such a record, it's only natural that Monarch should design this new combination electric range and room heater. And how you will enjoy it!

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For room heating, there is the fuel section that burns kindling, cord wood, cobs, coal—yes, and refuse, too! But that's not all! An electric heating unit is also available if preferred in place of the firebox. This fuel section has a built-in, circulating air heater which produces an amazing amount of warmth for amount of fuel or electricity used.

Like all Monarch models, it comes only in Full Porcelain Enamel—your choice of White or Ivory-Tan.

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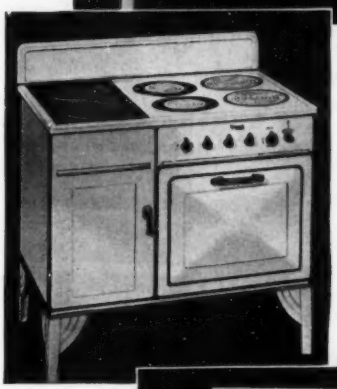

To see the range illustrated above, ask for HR47JW. Model HE47JW is same as above with an electric heating unit in heater compartment. At the left, Model H47JW is a coal heater model equipped with lid top over firebox.

This Monarch model CE47PW has a 4-lid top over heater and a built-in water storage tank. This offers electrically heated hot water when desired.

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GENERAL ELECTRIC

This 6-inch burr mill with 3 HP. motor has done all the feed grinding on the farm of Charles Nicol for the past ten years.

FEED GRINDING

By I. P. BLAUSER

WELL do I remember as a boy the trips that we made to town to have grain ground for the livestock and to have wheat ground or exchanged for flour. Our nearest town was five miles, and we always counted on at least a big half day, and many times nearly a whole day was required. That, of course, was before the automobile, the truck and the gasoline engine were generally available as part of the farm equipment. And electric power for farms was not then known except in some very few exceptions.

It is true that there were many farms using grinders driven by horse power, but the majority of farmers using ground feed took the grain to a custom mill to be ground. In many instances water power operated the early mill which was the nucleus of the trading center.

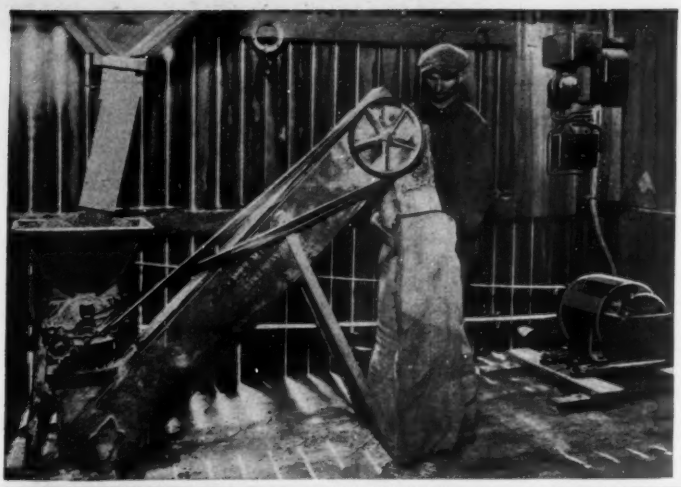
With the development of gasoline engine and the farm tractor many farmers began to grind feed at home. That reduced those time-consuming trips to town, and proved to be reasonably satisfactory, or at least was the best that was available at that time. That system also had some drawbacks, quite frequently the ground feed bin became empty at the most inopportune time, the gasoline engine did not always start easily, and particulary in the winter time it was quite a chore to get ready to do the grinding.

During the last ten to fifteen years many farms have received electric service, and during the next ten years that number will no doubt be doubled, and perhaps trebled. Electricity is an ideal source of power for grinding, and if the grinding equipment is wisely selected and properly installed, the cost of grinding feed is materially lower than other methods. When I make that statement I am mindful of the fact that during the past few years the portable custom grinders have entered the field in fairly large numbers and are grinding for as little as ten cents or less per 100 pounds of grain.

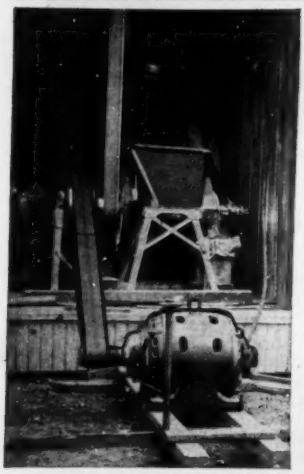
Most rural electric lines are single phase, and as such generally are limited to a 5 or 7½ h.p. electric motor. It was no easy task to get farmers interested in using electric power for grinding feed if the largest motor they could use would be a 5 or 7½ h.p. motor, particularly if they had been grinding with a tractor, and were accustomed to large capacity grinders. Once, however, they started to use electric power for grinding, their doubt quickly turned to confidence and praise.

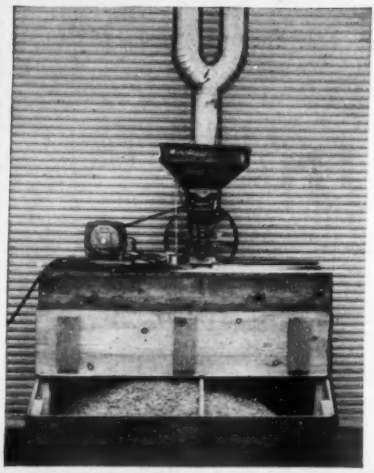
There is one incident that I would like to relate which is quite typical of what has happened in many instances. When the Ohio Experimental line was energized ten years ago this summer, the interest ran high and each new piece of equipment that was delivered to the farms usually was inspected by the neighbors. To be sure, there were a number of doubters, and frequently their remarks were not at all complimentary about the things we were attempting to do with electricity. That, however, was an experimental line and we were studying the possibilities of what could be done with electricity and what the limitations were.

Leo Coleman was one of the most enthusiastic

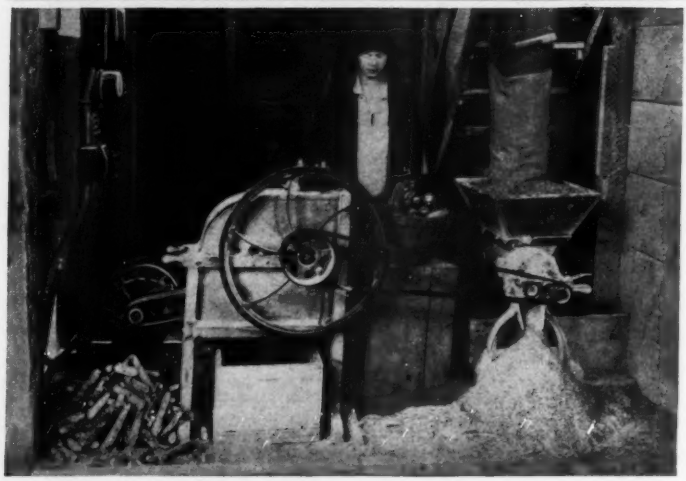


Louis Nicol operates his 6-inch burr mill with a 5 HP. motor. The grain is fed into the mill hopper from an overhead bin, and the ground grain delivered into bags by the bagging elevator.





Left: Feed grinding and mixing for about 3,500 birds is accomplished on the C. J. Hisey farm, Alexandria, Ohio, by means of a 10-inch burr mill and 5 HP. motor. The motor set-up shown here is of a temporary nature. Right: A type of small grinder, operated by a one-half HP. motor which is finding considerable favor among poultrymen and dairymen. It is started manually, and then may be left to do the grinding while other chores are being taken care of.



When Mrs. Edgar Rausch shells corn for her chickens, she also operates the feed grinder with no extra trouble or labor because the grinder hopper is kept filled by a chute leading from an overhead bin.

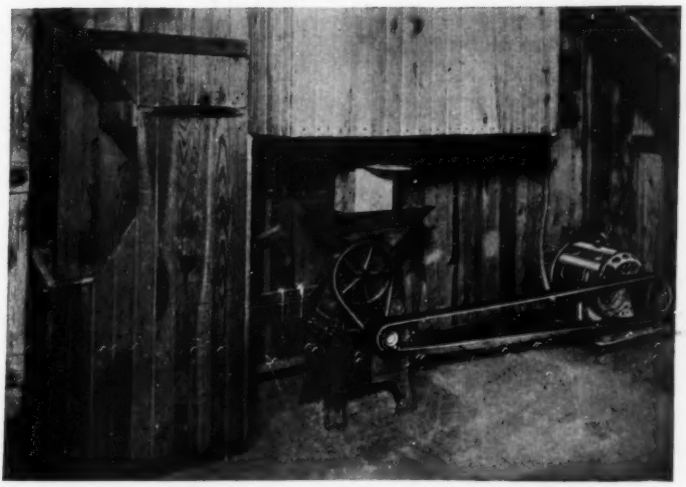
Here are the overhead storage bins, mixing floor, ground-feed storage bins, and grain hopper that is a vital part of the feed grinding set-up on Leo Coleman's farm.

cooperators on that line, and willing to give any possible use of electricity a tria¹ on his farm. Leo's brother, Carl, lived just outside of the corporation limit of Marysville and was one of the few farmers at that time who had electric service available, although he was using electricity only for lights and socket appliances. I am not giving away any of Mr. Coleman's secrets for we have had Mr. Coleman on our Farmers' Week program and he made the same statements to the group to which he talked that I am making. I remember very distinctly the comment Carl made when I delivered to Leo a small hammer mill to be operated by a 5-h.p. motor. Carl walked around it, looked it over and then a rather amused smile came over his face, and he said, "Of all the play-things that you brought to this farm, this 'watch charm' feed grinder is the most ridiculous." Of course Leo and I were not sure just what we were going to accomplish with it, but were willing to give the grinder a trial before passing our judgment upon it.

This particular mill, which is shown in one of the accompanying cuts, ground a mixture of corn and oats at the following rates, with a load on the motor of approximately 5 h.p. in each test:

Through the ⅛-inch screen, 488 pounds per hour; through the 3/16-inch screen, 781 pounds per hour, and through the ¼-inch screen, 1158 pounds per hour. The grain ground through the ¼-inch screen was between medium and coarse grinding and generally recommended as satisfactory for dairy cattle. The power consumed varied from 1 K.W.H. per hundred pounds for the ⅛-inch screen to 0.6 K.W.H. per hundred pounds for the ¼-inch screen. We also found we could crack shelled corn at the rate of 2000 pounds per hour, using only 0.1 K.W.H. per 100 pounds. This was done without any screen in the mill, and practically no kernels went through the mill without being cracked.

Needless to say, with such performance the mill soon won a permanent home on the Leo Coleman farm. Another picture accompanying this article shows the overhead storage bin and mixing floor used on the Coleman farm. This same mill also has an accessory hopper for use in elevating shelled corn and small grains into overhead storage bins.



Leo Coleman has arranged his 5 HP. hammer mill for operation with a minimum of labor and attention. Directly above the mill is the grain hopper which is filled from the floor above. To the left of the mill is the ground-feed bin into which the ground feed is blown by the fan located on the back side of the mill. Through the door at the back of the mill, shelled corn and oats is fed directly into the fan and elevated into the overhead storage bin.

This hammer mill and 7½ H.P. motor grind all the feed on the H. P. Miller and Son dairy and poultry farm, Sunbury, Ohio. Note the grain chute feeding into the hopper, and also the blower pipe which delivers the ground feed into an overhead bin. This hammer mill is equipped with an ear corn crusher, but most of the time the corn is shelled rather than grinding cob and all. The same motor is used to fill the silos on the Miller farm.

As a result of the performance of this mill, Carl changed his opinion about this "watch charm" feed grinder; in fact, he has been using one just like it on his own dairy farm for the last six years. Carl Coleman said, "The feed grinder is the best investment we have made so far as electrical appliances are concerned. During the winter months we grind an average of five tons per month. Our cost records show that this grinder pays us a dividend of about $20 per month during the winter months and about $10 per month during the summer."

I believe it would be desirable to list the other electrical equipment that is used on the Carl Coleman farm, and to state that the total electric bill is usually paid for out of the saving made by the feed grinder. In the Coleman home are the following pieces of equipment in addition to lights: Refrigerator, range, water heater, mangle, iron, washing machine, vacuum cleaner (large and small), sewing machine, corn popper, toaster, electric clock, radio, percolator, and waffle iron. About the farmstead are the following: Deep-well, automatic water system (for both house and farmstead), feed grinder, emery grinder, electric drill and milk cooler.

During the past four or five years we have been doing a great deal of work with a small burr type mill operated by a ½-h.p. motor. Very satisfactory results have been secured, and the small outfit is attracting a great deal of attention. I have actually had a man come into my office to get recommendation for a feed grinding set-up using a 20-h.p. motor. Of course very few farm lines are three-phase, and as a result most farms with electric service are limited to a 5 or 7½ h.p. motor. In going over his feed grinding requirements we found that ½-h.p. outfit had ample capacity for his needs even though he had a dairy herd of 25 cows. The ½-h.p. outfit does not have a very large capacity; in fact, about 150 to 200 pounds per hour of a fineness satisfactory for dairy cattle. This farmer was not long in making the decision that he had no need for a 20-h.p. motor for grinding and that the ½-h.p. outfit would fill his needs at a much lower initial investment as well as a much lower cost per 100 pounds of feed ground. In order to use this small outfit it is necessary, of course, to have a set-up so that the grinding is semi-automatic in operation. This is very easily accomplished with electricity.

The general set-up is shown in an accompanying picture, which shows grain chutes leading from overhead bins to the mill hopper. By the use of a thermal overload switch, costing less than $2.00, and operated by a tilting hopper or flapper valve, as well as manually, the grinder is automatically stopped when the hopper becomes empty, when the ground-feed box becomes filled or when the motor is overloaded to such an extent that it might be damaged. If larger capacity is desired a ¾ or 1 h.p. motor or even larger may be used with the same grinder and the speed increased porportionally. The ½-h.p. outfit will grind for a herd of 25 cows for a total cost of about ten cents per day with electricity at 3 cents per K.W.H. The larger the outfit that is used to grind the same amount of feed annually, the greater will be the cost per 100 pounds because of the higher overhead cost. For example, the total cost of the ½-h.p. outfit complete is approximately $50, while that of 5-h.p. motor and hammer mill is about $300.

The small outfit, however, will not fit into the feed grinding program on every farm because it will not grind ear corn or roughages. If ear corn is to be ground then in most cases it is necessary to use at least a 5-h.p. motor, although a limited amount of ear corn grinding can be done with a 2- or 3-h.p. motor. When ear corn is ground with a small hammer mill, it is desirable to have the ears crushed before they are fed into the mill.

Grinding roughage with even a 5-h.p. motor is rather slow, and requires constant attention, which of course increases the cost of grinding. Results to date at most Agricultural Experiment Stations seem to indicate that there is no advantage in grinding roughage for most classes of livestock. Special uses, however, may call for the grinding of roughages. If the problem is one of handling or storage, then the cutting of roughages should be considered instead of grinding.

With electricity furnishing a new source of power on farms, it is highly resirable that the present farm operations requiring belt power be studied carefully in order to see if it is not advisable to change some of the present practices in order to make better use of this new power. Certainly before any feed grinding equipment is purchased is the time to investigate the most modern practices and requirements. The most suitable equipment then may be purchased to meet the requirements for any particular farm.

Buried Sunshine in Arkansas

By EDGAR B. CHESTNUTT

AFTER Charlie Gantt lost three or four settings of tomato plants last year because the sun failed to shine and keep away the frost, he decided to do something about it.

And when Charlie Gantt decides to do something about a thing, you might just as well count on it being done, because he is just the sort of fellow who does things. Charlie Gantt is one of the best truck farmers in Arkansas, and while his place at Magnolia is not unusually large, it yields him an unusually good return on his investment. This is true not only because he is an energetic and practical farmer, but because he is a progressive one as well.

So when he started out to protect his tomato plants from the frost, naturally he turned to the modern method—electricity.

Through the use of electricity he has taken the sunshine out of the sky and buried it seven inches under the rich soil, utilizing small resistance wires that are wrapped in asbestos and covered with lead for protection. With this buried sunshine, which answers to his every beck and call, he has launched wholeheartedly into the operation of a system of hotbeds that will be independent of weather. And being such, they will enable him to get a good jump on his competitors by placing his truck farm products on the market much earlier than would be possible otherwise, thereby permitting him to demand a better price.

On the days when the sun fails to shine, or shines only disparagingly, and when it is completely hidden under cover of darkness at night, Charlie Gantt goes about his business without concern, knowing that the electrical equipment he has placed in charge of his buried sunshine will perform unfailingly and assured that his tomato plants, his sweet potato slips or his cabbage plants will get all the heat they require.

His buried sunshine is the heartblood of the largest electric hotbed system in Arkansas and one of the largest in the entire South. It is being watched with interest by truck growers and agricultural authorities in many other sections who are anxious to develop similar projects for their areas.

Upper: L. Hardee Kilgor, (left) Engineer, of the Arkansas Power & Light Company who installed the electrical hotbed equipment on the Gantt truck farm; and Charlie Gantt (right) owner of the largest hotbed system in Arkansas and one of the largest in the entire South. Mr. Gantt has turned to electricity to develop and protect truck farm products destined to reach an early market.

Center: A general view of the hotbeds on the Gantt farm. There are 24 individual beds each 25 feet long, arranged three beds to a section.

Lower: A close-up view of the electric beds on the Gantt farm at Magnolia, Ark., showing arrangement of wires on back walls of the beds.

The Gantt hotbeds are located on a plot of ground on the outskirts of Magnolia, in Columbia county, Arkansas, adjacent to the site he has selected for his new brick home which, incidentally, will be air-conditioned and equipped with all other modern electrical fixtures and appliances, for Charlie Gantt fully realizes the value and economy of electricity as a household servant.

Construction of the hotbeds themselves was supervised by Mr. Gantt, while the electrical end was supervised by Hardee Kilgore and Willis R. Greer, engineers for the Arkansas Power and Light Company, which is supplying the service.

Method of Arrangement of Beds

There are 24 individual beds in the Gantt system, arranged three beds to each concrete section; the beds are 25 feet long, making each section 75 feet long. Each section is seven and a half feet wide from front to back wall; the back wall is three feet high and the front one foot and facing south. Each section is covered with LL canvas, resting on slanting supports that extend from the front to the back wall. Canvas is used in preference to glass because it prevents fog from forming between it and the top of the plants.

Unusual attention is given to the soil used in the beds. Rich dirt from nearby woods was used, after being sifted first to remove all foreign matter; then it was mixed with fertilizer to provide necessary nutritive value. Use of this kind of soil not only assures sufficient plant food, but provides uniform heat to the plant roots, a feature that was not possible with the old type of beds. The Gantt hotbeds require 84 cubic yards of his special soil.

Because they will serve as the first real demonstration installation in Arkansas, both from an engineering and an agricultural standpoint, unusual care was taken in wiring the hotbeds so that accuracy would be possible in all recordings.

At the end of each concrete section of three beds is a pole containing a meter and manual control master switch. This arrangement permits operation of each section independently, furnishing a more detailed operations check.

From the meter the service is run underground in conduit to a thermostat relay on the inside wall of the bed. One thermostat is required for the heating units under the ground in each section and another is employed to operate a series of lights above the plants to control the heat above the ground.

The heating of the soil is done by electric current flowing through the resistance wire, which is buried at a depth of about seven inches in the specially prepared soil. Each foot of wire heats about six-tenths of a foot of ground. Thus, in each 25 foot section there are two lengths of 130 feet each and one of 65 feet of the heating cable. It is laid so that at no point are cables more than seven inches apart or more than three and a half inches from the concrete walls of the beds. The cables are plugged into regular convenience outlets inside the beds.

The air above the ground is heated at present by a system of ordinary Mazda lamps located on the under side of the canvas supports. The lights are controlled by a thermostat suspended in the air over the plants. Since artificial light speeds the growth of plants too rapidly, the bulbs are painted black confining the light but permitting the heat to be radiated. The lamps will be used only long enough to determine the exact wattage necessary and when this is decided they will be replaced by regular heating elements.

A master recording watthour meter on the main service checks the total kilowatt hours consumed and the rate at which it is used. A recording hygrometer is located in one of the beds to chart a permanent record of the humidity inside.

Installation of the hotbeds represents an invesment of about $3,000, exclusive of the ground on which they are located. They are capable of growing more than 1,000,000 tomato plants. Mr. Gantt planted his first tomato seeds on January 27, after pre-heating the beds for 48 hours. Immediately after the tomato plants were transplanted, he used the beds for growing sweet potato slips, then cabbages, and other plants, thus providing continuous operation of the beds.

From time to time, as the plants need water, they are sprinkled in the usual manner; on warm winter days the canvas cover can be rolled back to give the plants the full benefit of the ultra violet rays of the sun. The day before the plants are to be transplanted, the soil is wetted thoroughly and it is easy to pull the plants out of the moist dirt.

Plans to Supply Truck Farmers

In addition to supplying his own needs, Mr. Gantt plans to grow plants in his electric hotbeds for distribution to other truck farmers in his vicinity, enabling them to compete with other states in the production of quality products early in the season, when the price is good.

He contemplates using the hotbeds, too, for ripening his tomatoes at an early date, an idea he picked up from an article in ELECTRICITY ON THE FARM. By putting green tomatoes in the beds and covering them with canvas to keep them dark and warm, and using the buried sunshine to maintain a high temperature, he will be able to speed greatly the ripening of the fruit.

A spatula is a grand thing for poking bits of charred food from under the unit.

Cleaning the Cook Stove

By VERA B. MEACHAM

IT was just a little remark, made as her mother-in-law was getting into the car to drive back to Peltonridge, but it had quite spoiled Ann's morning. She turned back into the house so hurriedly that she did not see a car slow down at the end of the lane, wait for the Hackett car to reach the main road, and then turn in to pick its way slowly past the puddles toward the house.

"The old fuddy-duddy," Ann fumed. "I guess when she had three children to get off to school, three lunches to put up, and clean clothes to see to, she had to let something go, too. Slack with my cleaning, am I? and 'particularly that fine electric range Herb got you'." She mimicked her mother-in-law's slightly shrill voice with cruel accuracy as she walked across the kitchen and looked down at the range with angry eyes. It didn't look too good. The skillet in which she had cooked the children's eggs still stood on the front left hand burner, the grayish grease hardening around the edge. Little blobs of grease were spattered over the top of the range and sprinkled in fine dots across the back.

Ann stretched out a slender forefinger and drew it across the back. Ugh. It was greasy. She was looking at the smear of dust and grease on her finger tip with unhappy surprise when she heard a brisk knock on the kitchen door.

Startled, she stooped to look out the side window. "I didn't hear that car," she thought. "Who can it be?"

As she walked toward the door, it opened and a pleasant voice called out,

"It's me, Mrs. Hackett. Jane Shelton. May I come in?"

Ann gave a despairing look about the kitchen. This was too much. Miss Shelton was the home economist from the power company which had installed her range. She would be sure to want to know about it first thing, no matter whether Ann stood in front of it or not. But there was no help for it.

"Of course, Miss Shelton. How do you do?"

"I came to see how you're getting along now that you have had a chance to really get acquainted with your new stove. How're things going?"

Ann flushed a little.

"Fine,—oh, just fine," she stammered.

Miss Shelton stepped up beside her and looked over her shoulder at the stove.

Ann turned slowly, and stepped aside a little so she, too, faced it squarely. Suddenly it seemed to her she hadn't really seen that stove, not really seen it, all these busy weeks of threshing, silo filling, canning. Underneath its spatter of grease the white top was streaked with black marks she had left dragging heavy kettles across the enamel. Little brown rivulets had trickled down between the switches and dried on the front of the range. There were brown smears around the edge of the oven door.

She gulped a little and then burst out,

"Oh, Miss Shelton, have I spoiled it? Honestly, I just didn't realize how I was letting it go. My mother-in-law was here this morning and she made me mad by pointing out what a mess it was in. I've been so terribly busy, I've just jumped from meal to meal. If that's any excuse, which I know it isn't."

Miss Shelton opened the oven door, then closed it hastily.

"Suppose we start right in now and give it a thorough cleaning," she suggested briskly, sliding out of her coat, and pulling off her bright red tam.

" It isn't much of a job if you keep your stove clean from day to day, but this does seem to have got ahead of you a little."

"Right enough, I'd love to," said Ann. "Where do we begin?"

"Here on the top." Miss Shelton lifted off the skillet, and looked at the units carefully. "Let's see. All the switches are turned off, aren't they? That's the first thing to check when you start to clean the stove. If you had a master switch that turns off all the current, you would use that, too. Be sure that the enamel is cool. It should not be cleaned when it is hot. We'll begin cleaning around the burners."

As easy to clean as a china dish—but dishes get dirty.

If it is cleaned regularly, the oven lining will look like new through long years of service.

From a big soft bag she had set down on a chair near the door, she picked out a putty knife and a sturdy old case knife. Using the latter as a lever, she gently lifted the burner out of place. "Now a newspaper, please."

Ann brought her yesterday's paper which she spread on the top of the range, and then laid the burner on it. With the putty knife, she scraped off burned food from the edges of the rim and edge of the opening.

"Now you can wash this rim off with soap and water, and take off this little bit of discoloration with that fine steel wool in my bag. Don't get water on the heating element, though; just wash the rim."

With Ann's help she had the three burners cleaned up and back in place very quickly. Next she took out the cooker and wiped out the well carefully.

"You see it really does no great harm if you do let something boil over and spill things on the range, Mrs. Hackett," she said, as she pulled out the drip tray under the cooking top. "If it's a liquid is runs through on this tray here, and you can just wash it off, or if it is solid, it chars on the burner and can be shaken off if you want to pry up the burner, or brushed out with a soft brush. I've even known folks to clean out their burners with a small vacuum cleaner."

"The top looks awful," mourned Ann.

"It won't in a minute. This stain resisting enamel finish will be as good as new when you have washed it off with some good soapy water and scoured off those black marks with that cleanser there. It is a fine powder and it will not scratch the enamel. While you are doing that, I will take the units and racks out of the oven. Do you see how I lift the front edge of this unit just a little when I pull it out?"

Ann paused, basin in hand, to watch this dismantling of her oven.

"I haven't done that yet," she confessed.

"I thought not."

"Should I do it often?"

"That depends," Miss Shelton answered.

"If the oven is in constant use, day after day, it would probably be a good thing to look upon cleansing the oven as a regular weekly task."

"That discoloration around the door may come from your cooking at too high temperatures, Mrs. Hackett," she went on. "If you wipe off the door and the casing every time you use the oven you can keep it off."

"With everything out of the oven it is easy to wash it off thoroughly with warm soapy water," she pointed out. "Like anything else, it it easier to keep clean than to get it clean. When you spill food in it, she urged, or when something runs over, clean it up as soon as the oven is cold. After roasting or broiling meats, particularly, it is well to wash out the oven and wipe it dry with a clean cloth. If the grease stays on day after day, the lining will be permanently stained. When you are cleaning stubborn spots will yield to steel wool, and with aluminum and stainless steel linings the steel wool can be wet with ammonia to aid in loosening the film.

"The heating units themselves should not be washed, but the three flat prongs can be scoured off and rubbed slightly with unsalted fat or a little oil. When you put the units back in," Miss Shelton warned, "be sure they are pushed in as far as they will go. Unless they are connected, of course the oven will not heat."

"It begins to look a lot different, doesn't it?" said Ann, rubbing away at the top of the range.

"It looks like new, and it is like new," agreed Miss Shelton. "All you have to do now is wipe out the utility drawer and the warming oven. Then when you get these oven units put back and the shelves in place, you will be ready to go."

"I don't know how to thank you," said Ann.

"You don't need to thank me; this is my job, helping you learn how to use this stove to the best possible advantage. Knowing how to keep it clean is part of getting acquainted with it."

"I know," agreed Ann. "It is so beautifully clean and sanitary; it was disgraceful not to keep it that way. I will after this. But I do wish Herb's mother would drop in right now."

Some Interesting Uses

Motor does the heavy work. This litter carrier is moved along the monorail by hand but is easily hoisted by a ¼ H.P. motor.

Just spray it on. An electric paint spray outfit saves of time and does a real good job. Paint goes farther and goes on smoo

Grading and packing apples becomes an easier job when you use an electric motor drive.

Fan is used to distribute heat for drying seed corn in this brooder house.

The old fash modern thr operating

- saves a lot
d job.
smoother.

Electricity tends the furnace.
Here's an electric stoker.
Saves your coal and
let's you sleep longer.

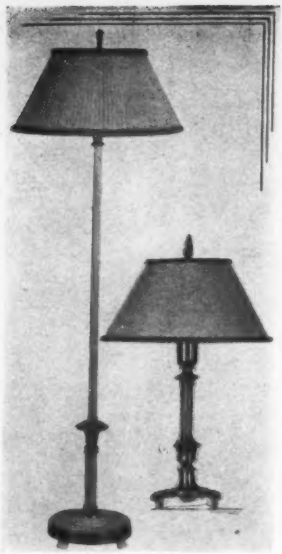
Motor mixes concrete.
This is interesting if you want
to develop a side line and
increase your income.

es of Electricity

d familiar "chug-chug" is missing from the
rn threshing scene. Here is a 10 H.P. motor
ting a 20 x 32 inch separator.

Electric heat helps raise lady bir
They are used in fighting mealy b
White ones are mealy bugs. Black
in capsules are lady birds.

Let's SEE *Now*



MANY a woman has been turning a reflective eye on the lighting in her living room this fall. The more we hear about this new science of light that makes it easy to see, the more we begin to question our lamps and examine our fixtures from an entirely new point of view. We may have picked them out for their beauty but we have to live with them as sources of light as well. Some of them, we are shocked to find, are letting us down rather badly.

Yet planning good lighting for the room we all live in most is not a difficult thing to do, and in view of its importance it deserves a good bit of attention. Perhaps it had never occurred to you that it takes any effort just to see, but it does. There is less work to seeing when there is enough light to see by, enough light, and the right kind of light makes less work for our eyes, our nerves, our muscles, and our minds.

First, Plenty of Light

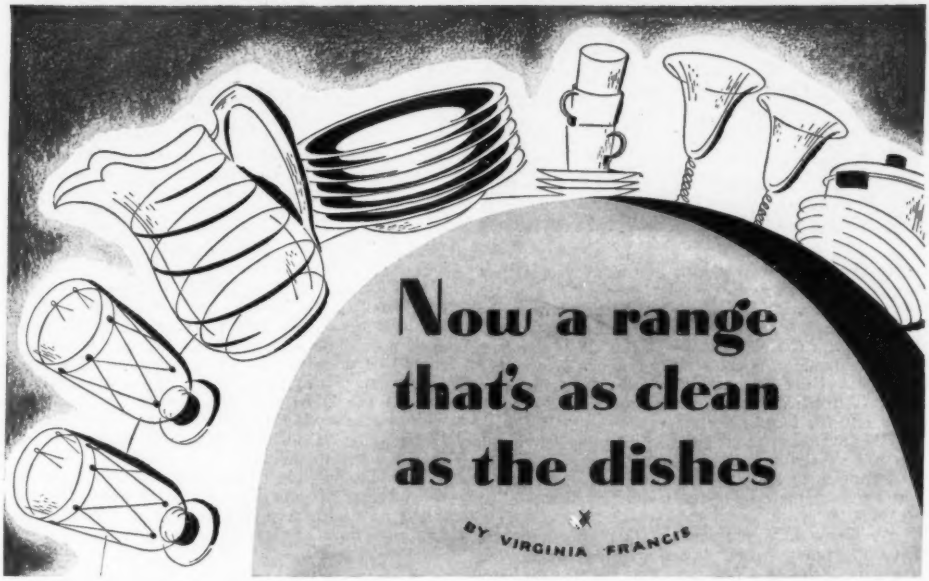
The first requirement of all is plenty of light.

Plenty for reading fine print for quite a long time means from 20 to 50 foot candles. Plenty of light for ordinary reading may be 10 to 20. Plenty for sewing may take anywhere from 10 to 100 depending on whether you are running up a seam in a sheet, just common sewing on light goods, or darning a tear in your youngest son's best blue serge pants.

If you want to write a letter at night 10 to 20 foot candles will do, but the children need from 20 to 50 on their study table. So much as that you say? Indeed yes. It takes very little light for the baby to see to pick up his alphabet blocks, pile them in his little red wagon and rattle them back and forth across the room, but it takes a good deal of light for the older children to look up words in the dictionary at night.

Plenty of light, then, is not just a general term, it is a measurable thing, like plenty of heat, and plenty of food.

Safe seeing demands next that we give a thought to the quality of the light in the room. That means, first of all, that it must be free from glare. All



Now a range that's as clean as the dishes

BY VIRGINIA FRANCIS

NOW you can wash your dishes backwards. Start with the pots and pans if you like. There is no soot to scour away. What's more you can wipe the range and dry it with your tea towel. You can — if you have a Hotpoint Electric Range!

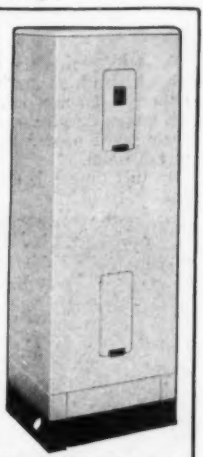
This range is as easy to clean as a dish. The surface is porcelain — glazed like china. The glowing heat that comes from the Calrod unit is absolutely free from "combustion dirt." The bottoms of the pots and pans stay bright and shiny. The stove does too! There is no deposit of soot and grime — no oily film is formed. And if food is spilled while you are cooking, it can be wiped away immediately, for the enamel work surface of the range never gets so hot as to be uncomfortable. Rounded corners and removable shelves in the oven make it easy to keep every part of a Hotpoint Range immaculately clean at all times.

The beauty of all this is that electric cookery today is within the easy reach of almost everyone. The new ranges are lower in price than ever before. And rates for electric cooking have hit all-time lows. If you are building a new home or planning to remodel your present one, be sure to install a Hotpoint Electric Range and have a truly modern kitchen.

5 REASONS WHY Miracle Cookery is Possible with the Hotpoint Electric Range—Clean . . . Cool . . . Fast . . . Better Results . . . Economical.

Send for free booklet: Do you want the key to better cooking and the secret of more time for recreation and leisure? Write for "Your Kitchen Modern." Address Virginia Francis, care Hotpoint Company, 5610 W. Taylor St., Chicago, Illinois.

CALROD—What Mazda means to light, Calrod means to cookery. Calrod is the name given to Hotpoint's hi-speed sealed-in-steel cooking coil which has revolutionized electric cookery. It brings new speed, new cleanliness and new economy to the kitchen.



The **VOGUE**—Hotpoint's new, modern style square-type water heater gives hot water every hour of the day or night without one minute's attention from you.

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc.
5610 W. Taylor Street, Chicago, Illinois

ELECTRIC Hotpoint RANGES
AND WATER HEATERS

This is the way the fixture shown below looks when it is in place.

bulbs should be shaded,—all of them, even if they are frosted bulbs or fancy colored ones. The portable lamps should set so no one sitting about the room looks up into a light, so no one can see the bulb beneath the edge of the shade. They are best set at one side of a chair or davenport, too, rather than behind the person reading, so there will be no glare from a shiny paper or polished wood thrown back into his face.

The next thing to consider in planning our lighting is its distribution. It is not enough to have 25 foot candles of light shining down on the paper in our hands if the rest of the room lies in a pool of shadow.

You know how you feel walking into a theatre from the sunny street. When you first go in, you are quite helpless. You can only grope your way along, and it's heaven's own mercy if you don't sit down on a hat or the lap of some surprised neighbor. Your eyes can't make the change from sunlight to dark on the instant. But they do in a minute, and you look up impatiently when some one else stumbles over you hunting for a seat you can now see clearly.

When the children work under a good light in a room that is otherwise dark, the eyes have to make this adjustment for light and dark every time they look up from the page. This puts their eyes to considerable extra work as well as discomfort.

What Lighting Engineers Say

For easy seeing the lighting engineers advise at least one-tenth as much light throughout the room as there is on any working surface under a lamp. This means that if there are 50 foot candles on your darning, you need 5 foot candles of light throughout the room.

By this time I hope you are impatient to know how you can get this amount of light where you want it.

Look around your room. Is there a portable lamp standing near every spot where any member of the family sits to read or study or sew? Is there a lamp at each end of the davenport, near each easy chair, and on the table if the children study there?

There should be. In no other way can you provide light enough on their work.

The shades on these lamps need your attention too. They should be open at the top to let some of the light up to help light the room; they should be deep enough to completely cover the bulbs; they should be wide enough to let the light spread out over your work; they should be thick enough to conceal the bulb; and they should be lined with white, or off- white to reflect all the light possible. Dark linings absorb an incredible amount of the light we buy to see with.

It is not possible to give absolute directions for the wattage of your lamp bulbs in these different lamps you will have in your homes, because their type and their shades are so varied, but this will serve as a guide.

In 2-socket table lamps—120-150 watts.
1-socket table lamps—100 watts.
Bridge lamps—75 watts.
Tall 2- or 3-socket lamps—120-225 watts.

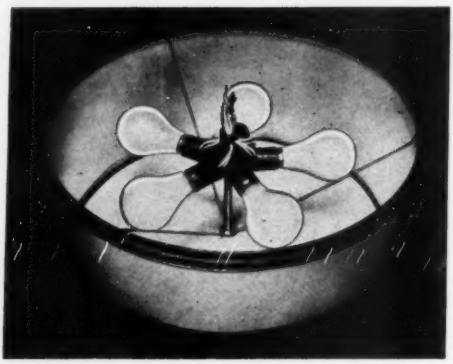
If you have a center fixture in the middle of the room, it should have no exposed bulbs no matter how decorative they may be. They should be shaded. A very interesting group of new fixtures has been designed to modernize old lighting fixtures at low cost. They are simply parchment drum shades in pleasing clear colors and attractive designs fitted and wired to mount right in the ceiling outlet or to screw into existing receptacles.

When Buying New Lamps

If you are buying new lamps, you will be interested no doubt in those that conform to the specifications set up a couple of years ago by the School Lighting Committee of the Illuminating Engineering Society. These lamps were planned for study and reading. They come in desk, floor and bridge models, and they bear, all of them, a tag with IES on it to assure you that they are genuine.

The lamps are simple in construction, attractive in appearance, and are carefully designed to give ample light, two kinds of light, light down on your work, and light up toward the ceiling. They have a bowl under the shade. This diffuses the light from the bulbs, making it easy on the eyes. The shades are wide enough to spread the light well over the area in which you would hold your work, and lined with white to make the best use of the light.

It is possible to buy bowls of this kind fitted with a socket that can be used with any standard you may have to make its distribution of light more effective.



This simple fixture is ready to be wired into the ceiling outlet.

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Rural Electrification Exhibit at Illinois State Fair

By E. W. Lehmann

A RURAL electrification exhibit, sponsored by the Illinois State Rural Electrification Committee appointed by Governor Horner, was shown for the first time at the Illinois State Fair this year. The objective of the exhibit was to show the present status of Rural Electrification in Illinois, to show electrical equipment for the farm as well as the farm home, to give facts and data about the use of different kinds of electrical equipment and the cost of operating it. This exhibit was made possible through the active cooperation of the State Commerce Commission, the State College of Agriculture of the University of Illinois, the Rural Electrification Administration, and many commercial organizations which furnished certain features of the exhibit—electrical equipment, appliances, and other materials.

Features of the rural electrification exhibit included a model of a barn with a herd of Holstein cows. Of special interest about the barn were a pump, an ensilage cutter, a hay carrier, a milking machine, a groomer, a milk cooler, and other electrically operated equipment found useful and practical on dairy farms. In this part of the exhibit was a portable 5 horse power motor, such as is suitable for driving a grain elevator, a feed grinder, and other farm machines. There was also a water system, a milk cooler, and an electric brooder.

Possibly of greatest interest was a large scale standard meter and a special indicating meter which indicated the cost of operating a lot of different appliances in cents per hour based on a price of electricity at 5 cents a kilowatt hour. If one wanted to know what it cost to use a radio, a fan, a washing machine, a toaster, a cooker, a waffle iron, or other appliances, all he would have to do would be to turn the switch—the meter does the rest. The visitor found that the radio costs about ⅓ of a cent an hour to operate. The toaster costs 2.5 cents an hour, a 100 watt lamp ½ cent, a 10-inch fan only ¼ of a cent an hour to operate, and the washing machine about 1 cent an hour.

Another interesting part of the Rural Electrification exhibit was the electric kitchen. It was of special interest to every housewife. It was demonstrated that electric cookery is the coolest, cleanest, and most convenient of any method of cooking, and if a price is put on the labor of keeping other equipment clean, cooking with electricity is as cheap as most other methods. Of course a suitable cooking rate must be available.

A feature of the exhibit which many people overlooked was a beautiful panorama—a night scene depicting a rural community with well-lighted homes and buildings, a scene of contentment made possible by electric service.

Rural Electric Conference

The Purdue University Annual Rural Electric Conference will be held at the University, Lafayette, Ind., on November 20 and 21. The program will include discussions of irrigation in humid regions, power utilization of seed corn driers, electric dairy water heaters, heating drinking fountains for hogs and steers and a discussion on methods for building the farm load.

Electricity in the Home and on the Farm

A new book on practical electrical work, and entitled "Electricity in the Home and on the Farm," has just been published by John Wiley and Sons, Incorporated, 440 Fourth Ave., New York City. The author of the book is Forrest B. Wright, Ph. D., Assistant Professor of Agricultural Engineering, New York State College of Agriculture, Cornell University, Ithaca, N. Y. The book retails for $2.50 per copy.

The purpose of the book is well explained in the preface wherein it states: "This book is written for those who wish to gain a practical knowledge of electricity and its applications in the home and on the farm. Although the book is designed with the needs of the school shop teacher in mind, the subject matter should be equally useful to the average householder and farmer. It is the aim of the author to present such fundamentals and practical jobs as will aid the student to think for himself in terms of electricity and to acquire some skill in connection with its use."

The book is divided into two parts. The first part consists of a series of practical jobs arranged more or less in chronological order, starting with very simple ones and proceeding stey by step to the more difficult ones. The second part consists of

(*Continued on page 26*)

View showing exhibit sponsored by the Illinois State Rural Electrification Committee at the Illinois State Fair.

Questions?

Here are your answers!

YOU are vitally interested in making the fullest profitable use of electricity at the lowest possible cost. The many General Electric bulletins on rural electrification give just the information you need — the result of the work of General Electric's corps of specially trained men, who have been active in this field since 1923.

Below are listed some of the informative bulletins which we shall be glad to send you without charge. Or, if you have special problems, write Rural Electrification Section, General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

General Electric, Dept. 6A-201, Schenectady, N. Y.

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- ☐ *Portable Farm Motors, GEA-192*
- ☐ *Running Water Pays Big Dividends, GEA-2075*
- ☐ *Cost of Operating Farm and Home Equipment, GEA-2248*
- ☐ *I Am Electricity, GEB-89*
- ☐ *Romance of the Electric Motor, GEC-41*
- ☐ *Electric Helpers for the Farm, GEC-89*
- ☐ *Electrical Equipment for the Home, GES-1291*
- ☐ *Farm Wiring, 51-60*
- ☐ *Farm Refrigeration, 320-1106*
- ☐ *Farm Lighting, Reprint*
- ☐ *Electrify Your Farm, Reprint*

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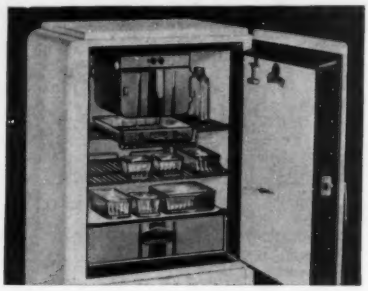
Conducted by
GAIL MEREDITH

The WEATHER OUTSIDE



When you get a box like this you can just plug in the cord for cold.

EATING is a year round habit. There is no closed season for hunting food and getting it ready for the table. And if appetites were ever going to take a vacation, I'm quite sure they wouldn't choose this time of year to do it. Instead they grow and flourish, the colder it gets.

That means there can never be any let up in our watchfulness of the food we serve. We used to believe we could take a long breath and relax our vigilance about now, that we could depend on the weather to preserve our food when winter came.

Science has knocked that idea into a cocked hat. We know we can't to-day.

Besides making clear to us that to keep meats and eggs and milk, green vegetables and cooked vegetables safe for folks to eat, we must store them at a temperature above 35 degrees and below 50, they have gone on to show us that we can't depend on the weather in the street to give us just that temperature. Not regularly nor for very long at a time.

So even if we keep our food in a box outside on the porch where the weather, as well as dust and smoke and prowling animals have a good chance to get at it, we can't be sure of a safe temperature Sometimes it goes up and sometimes it goes down, but only a very, very small part of the time does it linger just where we want it,—between 35 and 50.

Since the cellar cold depends on the temperature outside, too, it is equally unreliable for safe storage. A refrigerator that will assure you of the temperature you want provides the only thoroughly reliable year 'round storage for food.

We used to think one of the best ways we could find to preserve meat was to freeze it, didn't we? And in the northern part of the country when the mercury dropped far enough, we could keep meat frozen for a considerable length of time. And if it did thaw a little now and then, we just left it

Ask for it . . . It's FREE

As a reader of ELECTRICITY ON THE FARM you are entitled to our buyers' information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank below to tell us what you need and we will see that you get the information you want.

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there until the next cold snap froze it stiff again.

Some time ago Dr. W. L. Mallman at Michigan State College undertook some tests to find out the effect of this slow freezing and thawing on beef. Reporting on these tests he says,

"We took a piece of beef and photographed it twice. The first picture was taken through a low powered microscope. This showed us that the muscle fibers were firm and smooth and unbroken.

"Our second photograph was taken through a high powered microscope so that we could count the number of bacteria in the meat. We found that it had 6,000,000 per gram."

After this the meat was frozen and two more pictures taken. The one where the camera looked through a low-powered microscope, says Dr. Mallman, showed that the slow freezing had broken up the smooth firm muscle fibers badly.

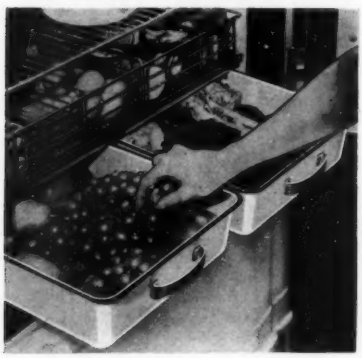
"Most foods," he pointed out, "contain approximately 75% water. Freezing water exerts a pressure of 27,000 pounds a cubic inch. This pressure is so great that it breaks water pipes, so it is easy to understand how it can tear meat to pieces.

"This frozen meat is flabby and soft. Its supporting structure has been destroyed. Its juices escape and its nourishing value is lowered."

The second photograph taken through the microscope powerful enough to pick out bacteria showed that freezing had killed some of the bacteria. There were now only 1,340,000 per gram.

"Our first conclusion," agreed Dr. Mallman, "then, would be that it is desirable to freeze meats before eating them. But wait an instant. Let us thaw this frozen meat and then see what happens. We thaw it at 45 degrees—a much lower temperature than those which often occur in the window box on the back porch. Within 24 hours these one and a third million have developed a population of 414 million in each gram of meat.

"But look at a piece of the same roast which has not been frozen. This piece has been kept in a mechanical refrigerator for 24 hours. And its bacteria count has decreased from 6 million per gram to 565,000 per gram."



Your food is kept constantly at a safe temperature.

That comparison deserves quite a little study if you are interested in keeping foods safe from spoilage.

Dr. Mallman started out with a piece of meat inhabited by 6 million bacteria in every gram. He froze it, then thawed it out at 45 degrees, and found

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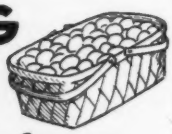
showing the latest 1937 Delta line of Circular Saws, Band Saws, Scroll Saws, Grinders, Shapers, Sanders, Lathes and full line of accessories. Write to Dept 625. Delta Mfg. Co., 600-634 E. Vienna Ave., Milwaukee, Wis.

20 LAYING HENS



pay for a KitchenAid

Electrical Food Preparer

Your men-folks use the latest, improved machinery. Your city friends have long known the joys of Kitchen-Aid in their homes. Yet city meals never involve the constant work and worry—are seldom so large—as those *you* prepare 365 *days a year*. Why not a KitchenAid for *yourself!* The time and work of food preparation is cut in half —*at the snap of a switch*. KitchenAid is a *complete food preparer* for the home. It beats, whips, mixes, grinds, strains, sieves, slices, chops—and many other operations too numerous to mention. It's strong! There is *only one* KitchenAid—and at a *new low price*. Let us tell you about it. Coupon below will bring you complete information with no obligation. Mail it today.

KITCHENAID MFG. CO., Dept. E-5, TROY, OHIO
Please send me free service booklet, "How to Choose a Food Mixer"—no obligation.

Name.....

Address.....*R.F.D.*.....

Town.....*State*.....

at the end of 24 hours that the bacteria had multiplied to 414 million. In contrast to that the meat he had not frozen, that he had stored away in the refrigerator showed that the bacteria population had declined to just a little over half a million.

"Realize, also," says Dr. Mallman, "that the frozen meat used in this experiment was not exposed to the unsanitary conditions that cannot be avoided when natural temperatures are used. But the freeze and thaw of natural refrigeration does make meat flabby, does lessen its nourishment, does encourage rapid decay."

For it's always cold weather inside the box.

Electricity in the Home

(*Continued from page 22*)

ten chapters of text on the fundamentals of electricity and is intended as supplementary study in connection with the jobs.

Some of the electrical jobs ordinarily done around farms and which are described in the book include: construction of simple electric circuits, series circuit, and a parallel circuit; installation of a doorbell circuit using one bell and one button and building a return-call system using two batteries and only two wires between stations; use and installation of single and double pole switches, double throw switches, snap switches, three-way switches and special switches; types and function of fuses; materials used for conductors and insulators: capacities of wire conductors: how to figure wire sizes for a given load; splicing conductors; making extension cords; installing lamp sockets; construction of trouble lamps; wiring systems for light, heat and power; installing outlets; special circuits; transformers, electric motors and generators; heating appliances; and making minor repairs on electric equipment.

The book is well written, easy to understand and is fully illustrated.

Insult to Injury

The dentist had just called on one of his clients to try to collect a bill for a full set of false teeth he had made for him about a year before.

"Did he pay you?" asked his wife.

"Pay me!" echoed the dentist, scornfully. "Not only did he refuse to pay me, but he actually had the effrontery to gnash at me—with my teeth!"

Demonstrating Equipment at the Farm

To make it convenient for farmers to see what modern electrified farm and household equipment will do, some power companies are now sending demonstration coaches into rural districts. These coaches carry a selection of equipment, much of which may be demonstrated right on the farm.

A very attractive and complete outfit has been put on the road by the Ohio Power Company, as shown by the accompanying iilustrations. This coach carries the following equipment.

Range, Refrigerator, Water system, Water heater, Ironer and bench, Vacuum cleaner, Hand vacuum cleaner, Radio, Washer, Roaster and grill, Food mixer, Waffle iron, Sandwich grill, Toaster, Coffee maker, Percolator, Hand iron, Bottle warmer, Warming pad, Portable room heater, Curling iron, Two unit hotplate, I. E. S. lamp, Lumiline lamp, Oscillating fan, Miniature model furnace complete with force air conditioning, Unit and controls, Feed grinder, Hotbed, Milking machine, Separator, Fly electrocutor, Electric fence unit, Brooder, Shop work bench, Soldering iron, Bench drill, Bench saw, Bench grinder, Wiring devices display board, Heating unit display board.

Upper: Coach outfitted by the Ohio Power Company to demonstrate electrical equipment on farms.
Center: View showing front end of coach.
Lower: Equipment on display in rear end of coach.

BENEFITS FOR ALL THE FAMILY

Ever since the early days of electricity on the farm Century Motors have proved their reliability and brought real and lasting benefits to thousands of farm families.

Century Single Phase Motors make easy work out of hard jobs — Pumping Water for all purposes, Grinding, Shredding, Baling, Feed Mixing, Wood Sawing, Tool Sharpening and many other similar jobs that can be done better, faster, with greater ease and more profit.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century
MOTORS
UP TO 600 H. P.

Chromalox Super-Speed

. . . the top burners that fit any electric range

"They're wonderful!" say thousands of housewives. Satisfy yourself—ask your electric dealer, your power company—or write us.

and restore new range cooking speed. Lasting satisfaction. Immune to damage by spilled food, physical blows, corrosive action. Save power costs.

EDWIN L. WIEGAND CO., 7580 Thomas Blvd., Pittsburgh, Pa.

ASK YOUR POWER COMPANY for a DEMONSTRATION

GRIND ELECTRICALLY

Grind Feed with an Electrically Driven W-W

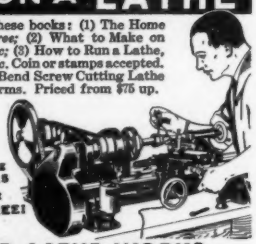
With your low-cost electric power and a W-W Hammer Grinder you can grind everything grown for feed from heaviest roughage to small grains. Grinds and mixes at one operation—ideal for poultry and other specially mixed rations. Tell us what you have to grind and we'll make expert recommendations. Illustrated catalog and low factory prices SENT FREE.

W-W GRINDER CORP.

Dept. 120 Wichita, Kansas

WHAT TO MAKE *and how to make it* ON A LATHE

WRITE for these books: (1) The Home Workshop, *free*; (2) What to Make on the Lathe, *10c*; (3) How to Run a Lathe, 160 pages, *25c*. Coin or stamps accepted. Any South Bend Screw Cutting Lathe on easy terms. Priced from $75 up.



Ask for Catalog No. 18 Sent FREE!

SOUTH BEND LATHE WORKS

326 E. Madison Street South Bend, Indiana, U. S. A.

ON THE AIR

Conducted by JEROME J. HENRY

Mythical Town Now a Real One

CITIZENS of Waters, Arkansas, have seen the name of their town changed in honor of Lum and Abner, whose mythical radio "jot 'em down" store has always been located in Pine Ridge.

So Pine Ridge, Arkansas, it is now, and Waters has gone as the name of the little Arkansas village. The Post Office Department gave its sanction to the change. A radio broadcast marked the ceremonies.

But that's hardly a start in the name changing business, according to Dick Huddleston, the real life storekeeper there. Huddleston has had to notify all the residents of Waters to write all their friends that mail should be addressed to Pine Ridge instead of Waters. Township officials are getting new signs painted, the stamp cancelling apparatus at the post office had to be changed and local officials needed new seals of office.

In addition the tax and voting records of the state had to be altered for every taxable or voting resident and the party line subscribers need a new telephone directory.

The name of the town also must be changed in the next postal guide, but what really stumps Huddleston is the thought of all the road maps published by the state and various oil companies that must be revised.

The name of the town was changed on Lum and Abner's fifth anniversary on the air.

• • •

Steps In as Tenor; Loses Voice

YOU have to act quickly and think faster than that in radio work.

So when George Kickson, radio tenor, rushed into the Woman's Magazine of the Air studio just as the program was about to go on the air, and whispered hoarsely to Benny Walker, the Magazine's master of ceremonies, "Can't sing a note—I've lost my voice," Benny never turned a hair.

He merely stepped to the microphone, announced the opening of the broadcast, then moved over a pace or two beside three-fourths of the program

(*Continued on page* 30)

Fastest, Finest Electric COW CLIPPER

STEWART CLIPMASTER

Preferred the world over for its greater speed, ease of handling, rugged, lasting durability.

Exclusive Stewart design ball-bearing motor is air cooled and entirely encased in the insulated *EASY-GRIP* handle that is barely two inches in diameter. Completely insulated—no ground wire required. The fastest clipping, coolest running, easiest-to-use clipper for cows, horses, dogs, mules, etc. Stays sharp longer. A $25 value for $16.95 complete. Slightly higher west of Denver. 100-120 volts. Special voltages slightly higher. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Company, 5524 Roosevelt Road, Chicago, Illinois. *47 years making Quality products.*

Has 2 to 5 times as much power as other clippers of this type.

Questions and Answers

Conducted by R. U. BLASINGAME

Keeping Water Pipe from Freezing

Question: *I wish to lay a water pipe underground where it may freeze in cold weather. Could I lay a hot house cable beside it and keep it warm to prevent freezing? How long is the cable? How long would it last, laying beside the pipe? It would not be in use much. Where can I secure such cable and what would the cost be?*

G. P. G.

Answer: Hotbed heating cable can be used for this purpose. The common lengths of this cable are 60 ft. (400 watts) to be used on 110 volt and 120 ft. (800 watts) to be used on 220 volts. This cable should last from five to ten years in this type of installation. The cost is approximately 7 cents per foot. Your electrical dealer can secure it for you from the manufacturers (Westinghouse or General Electric).

Wire Sizes

Question: *I want to install electricity in the barn this fall to run some motors. There will be two 1 H.P. motors and one 3 H.P. motor. The barn is located 300 feet from the house. What size wire should I use in the barn? Would you use rigid conduit or armored cable in a barn? We have 110-220 volt, 60-110 amp. service. I may use a 5 H.P. motor at some time. What size fuse would you use for 1 to 3 H.P. motors.*

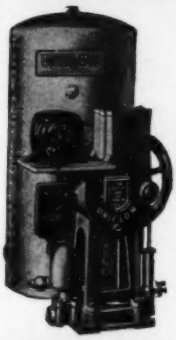
In the last copy of your magazine you advertised a new fuse. Can you tell me who makes it and where I can purchase it?

S. J. C.

Answer: Two No. 2 and one No. 4 should be used between the house and barn. This would take care of the 5 H.P. motor you propose to use. I would use a non-metallic sheathed cable in the barn, or a rigid conduit. Use a 60 amp. switch fused with 40 ampere fuses for the 1 to 3 H.P. motor. For short runs in the barn use No. 12 wire for the 1 and 3 H.P. motors and No. 8 for the 5 H.P. motor.

The multiple fuse is manufactured by the Indicator Corp., 32-36 Green St., Newark, N. J.

DOES SHE NEED THE EXERCISE?



Uniflows are great wife savers. The deep well system at the left is quiet—smooth—powerful. You never saw a more positive lubricating system, and it's the easiest pump to service in the field. Complete for $102.00.

Write for complete catalog.

DEEP WELL PUMPS from $80.00 up

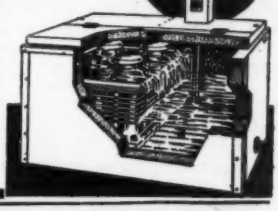
ELECTRIC
Water Systems
Cellar Drainers
Milk Coolers
Refrigerators
&
Water Softeners
SEPTIC TANKS

1503 EAST LAKE ROAD
UNIFLOW
ERIE PENNSYLVANIA

COOLS ALL THE MILK in EVERY CAN!

ESCO NI-AG-RA

You get Icy Water ABOVE the MILK LEVEL, whether you have one can, half capacity or full capacity. ESCO NI-AG-RA with EXCLUSIVE HIGH WATER LEVELER cools both night and morning milk to 50° or less in one hour. Write today for booklet!



ESCO CABINET COMPANY
571 E. Biddle St.
West Chester, Pa.

Again TRUMBULL Forges Ahead

Announcing a Better

ELECTRIC BROODER

New, Improved Design

Brooding tests under commercial poultry farm conditions show:

OPERATING COST CUT 1/3
CHICKS 8% HEAVIER AT SIX WEEKS
MORTALITY GREATLY REDUCED

Investigate this sensational new Electric Brooder before starting another brood. Write for FREE Folder and particulars.

TRUMBULL WATER WARMER
Maintains Water at 50° in Coldest Weather
Then, your birds will drink more water and will lay Profit Eggs this winter.

Fully Guaranteed
At your dealer's or from us, postpaid, $3.00.
FREE Folder gives useful information. Write today.

Improved TRUMBULL Electric Brooder

THE TRUMBULL ELECTRIC MFG. CO.

A GENERAL ELECTRIC ORGANIZATION

1012 Woodford Ave.
PLAINVILLE, CONN.

What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Flexible Shaft Machine

Cleaning and repairing farm machinery and sharpening cutting edges of tools requires many hours each year of a farm operator's time. Rusty discs and moldboards or cultivator shovels may be polished by hand power or removed and taken to a stationary machine to save time and labor. Similarly farm machinery may be repaired or tools sharpened by hand equipment, or more easily and quickly with the aid of motor-driven stationary equipment.

A new machine which will interest farmers who use much farm machinery is one in which an electric motor may drive a drill, grinding wheel, wire scratch wheel or polishing disc through a flexible shaft. This machine is equipped with a 3450 r.p.m. ball bearing 110-volt a.c. motor. It is mounted on a pedestal caster base with full tilting and swiveling yoke.

Electric Brooder

Cool room brooding has been recommended by poultry departments of leading state universities. It is practiced by poultrymen from New England to California with successful results. Electric brooders are particularly suitable for use where the cool room method of brooding is used.

An eastern manufacturer ot electrical equipment has developed a new electric brooder in which an electric fan creates a forced ventilation beneath the hover. The brooder is square shaped, 52 inches square, rated by the manufacturer to handle 350 chicks. The heating element takes 550-600 watts.

Electric Poultry Water Heater

Poultry drinking fountains, with ice frozen on them, are little better than none at all in poultry houses on winter days. The high percentage of water in eggs makes imperative a constant supply of water if laying birds are to produce eggs. Water heaters of various types are available but the electric is the safest, most convenient and frequently cheapest for use in the poultry house.

A new type of immersion electric poultry water heater has been developed by a manufacturer, who first produced such a heater equipped with thermostat. The new heater is of tubular construction, is controlled by a thermostat and is equipped with a lead sheath cord. The heating element is of 135-watt capacity for 110-volt service and 6½ inches long. The thermostat is set to cut off the heater automatically when the temperature of the water in the drinking fountain reaches 50 degrees F.

On the Air

(*Continued from page 28*)

quartet, Bob Stevens, John Teel, and Henry Stanton. A minute later he was trolling merrily away in Nickson's place— all of which would make a better story were it not for the fact that Benny used to be a noted quartet singer before he became a master of ceremonies.

CLASSIFIED ADVERTISING

LYON ELECTRIC BROODERS CAN SAVE YOU MONEY AND CHICKS. They are endorsed by leading poultrymen, schools and game breeders. Excellent for all climatic conditions encountered from Maine to Hawaii. Manufactured by the Pioneers of Electric Brooding. Many types available including the New Fan Brooder. Write for FREE catalog of ELECTRIC SUPPLIES FOR POULTRYMEN (time switches, burglar alarms, incubators, etc.). LYON ELECTRIC CO., Dept. E.F., San Diego, Calif.

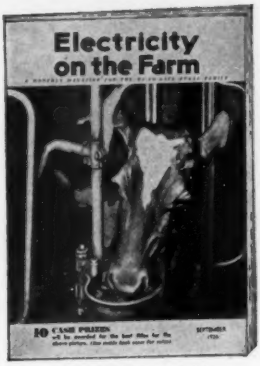
The PARAGON POULTRY TIME SWITCH is scientifically designed and approved by state universities. It provides automatic control both morning and night and DIMS THE LIGHT AT NIGHT to allow the hens to return to roost. Low price and UNCONDITIONALLY GUARANTEED. Write for full information today. PARAGON ELECTRIC COMPANY, Van Buren and Dearborn Sts., Chicago, Ill.

Light the Way for MORE EGGS—MORE Profit with an Automatic Da-Lite Time Switch. One of the biggest money makers, and greatest conveniences a poultry raiser can install. Also furnished in an all-electric with or without dimmers. AUTOMATIC ELECTRIC MFG. CO., Mankato, Minn.

WRITE FOR BROWER'S New Big Supply Catalog and Poultry Guide. Shows largest line of poultry equipment in world; over 425 items; including Electric Fountains, Brooders, Incubators, Lighting Devices. Filled with poultry information. Low prices—Big Savings—Write today. BROWER MFG. CO., Dept. N30, Quincy, Ill.

THE GRAIN BUSTER—a new type Feed Grinder—only one moving part excepting bearings—lasts longer, runs easier, delivers fresh feed faster, operates satisfactorily from 5 HP. motor. Write for descriptive folder. LINK MANUFACTURING CO., INC., Fargo, North Dakota.

COVER TITLE CONTEST



SEPTEMBER COVER

RULES
November Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before December 1st.

Winning names and titles will be announced in the January issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

$20 First Prize for September Contest

"When electricity puts the water in the cup, the milk is in the bag."

MRS. ERNEST C. LEIBY, R.F.D. 1, Cuyahoga Falls, Ohio.

Nine $2.00 Prizes for September

"Mechanically haltered, electrically watered."
GERALD R. MASTERS, Preble, N. Y.

"Thirst is quenched, milk picks up,
An electric pump fills the cup."
W. G. YEAGER, Raleigh, N. C.

"By 'watering the milk' the modern way
Bigger dividends every day."
MRS. ARLEEN BENNETT, R.F.D. 1, Laconia, N. H.

"Bossy gives a press, electricity does the rest."
MRS. E. D. WAGNER, R.F.D. 3, Volant, Pa.

"Getting ahead in your position fills the cup to overflowing."
MRS. MERCIE P. HILDRETH, R.F.D. 1, Sherborn, Mass.

"Bossy doesn't have to think,
Just push down the valve and take a drink."
F. M. HOLBROOK, R.F.D. 1, North Platte, Neb.

"When pastures are dry and brooks are low,
The electric pump makes the water flow."
RUSSELL E. CODINGTON, R.F.D. 1, Hudson Falls, N. Y.

"Water at every stall,
Electricity does it all."
DONALD B. ORWIG, Williamsport, Pa.

"At will—bossy can get her fill,
On a very small electric bill."
MRS. WM. TESCH, R.F.D. 4, Box 585-A, West Allis, Wis.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for November is

.....

.....

(a) Do you have running water in the house?.....Do you have a bathtub?.....

a kitchen sink?.....a septic tank?.....

From whom did you purchase them?.....

.....

My name is.....R.F.D.....

*Post Office.....County.....State.....*11-36

Electricity on the Farm
24 West 40th Street
New York, N. Y.

Return Postage Guaranteed

Agricultural Library,
Pennsylvania State College,
State College, Pa.

Day and Night!

Dependable service twenty-four hours a day! You have but to flip a switch for reliable—fast—clean—safe—cheap electricity.

Your Power Company has equipment and men ready at all times to supply customers' demands. No other commodity that you buy involves so many complicated technical precautions to insure uninterrupted and continuous service. No bill you pay gives as much service for your money.

You're wise to make the most of this every-hour, all-duty power service. Remember—the more you use the less each unit costs.

For further information, write your own Electric Company.

Electricity on the Farm

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